



Tetra Tech, Inc.  
4213 State Street, Suite 100  
Santa Barbara, CA 93110-2847  
VOICE (805) 681-3100 FAX (805) 681-3108

Project: Vandenberg Air Force Base  
Log of Well No. 14-MW-9

Location: OU4, Site 14, approximately 890 ft. southwest  
of Building 1794, west of Watt Road.

Date Started: 7/30/03 Completed: 8/1/03

Logged By: S. Serratore Checked By: D. Springer, R.G.

Drilled By: Ramon Zereda, BC2 Environmental Corp. *25-26-#6962*

Drilling Equipment: CME 95, 13" HSA

Sampling Equipment: 2" I.D. Split Spoon

GS Elev.: 130 ft above MSL TD: 150 ft

4" PVC Blank Casing: from 0 ft bgs to 98 ft bgs

4" Screening Casing: from 98 ft bgs to 118 ft bgs

Bentonite/Cement Grout: from 0 ft bgs to 91 ft bgs

Bentonite Transitional Seal: from 91 ft bgs to 96 ft bgs

Sand Filter Pack: from 96 ft bgs to 120 ft bgs

TOC Elev.: 132.82 ft above MSL

| Depth<br>(ft. bgs) | MATERIAL DESCRIPTION  | Material<br>Symbol | Material<br>Type | Well<br>Construction | Sample | Blow<br>Counts<br>per 6" | Percent<br>Recovery | PID (ppm)<br>Amb/Smp | REMARKS  |
|--------------------|---|--------------------|------------------|----------------------|--------|--------------------------|---------------------|----------------------|--|
| 5                  | <u>sand</u> , dark yellowish brown (10YR 3/6), fine to medium-grained, subrounded, loose, dry, dune sand. |                    | SP               |                      |        |                          |                     | 0.3/<br>0.2          | Start drilling 0751. PID readings taken from ambient borehole. Soil logged using cuttings. |
| 10                 | yellowish brown (10YR 5/6), dense, slightly moist.  |                    |                  |                      |        |                          |                     | 0.2/<br>0.2          |  |
| 15                 |   |                    |                  |                      |        |                          |                     |                      |  |
| 20                 |   |                    |                  |                      |        |                          |                     |                      |  |

90 ft. bgs. ▼ Groundwater depth during drilling

90.81 ft. bgs. ▼ Groundwater depth after well development on: 11/05/03

TC Number: A250-48

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Page 1 of 7



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|--------------------|---|--------------------|------------------|----------------------|--------|--------------------------|---------------------|----------------------|---------|
| 20                 | sand, yellowish brown (10YR 5/6), fine to medium-grained, subrounded, dense, slightly moist, dune sand. |                    |                  |                      |        |                          |                     |                      |         |
| 25                 |   |                    |                  |                      |        |                          |                     |                      |         |
| 30                 |   |                    |                  |                      |        |                          |                     | 0.2/<br>0.1          |         |
| 35                 |   |                    |                  |                      |        |                          |                     |                      |         |
| 40                 |   |                    |                  |                      |        |                          |                     | 0.2/<br>0.1          |         |
| 45                 | Dark yellowish brown (10YR 4/4).  |                    |                  |                      |        |                          |                     |                      |         |



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| Depth<br>(ft. bgs) | MATERIAL DESCRIPTION   | Material<br>Symbol | Material<br>Type | Well<br>Construction | Sample | Blow<br>Counts<br>per 6" | Percent<br>Recovery | PTD (ppm)<br>Amb/Samp | REMARKS   |
|--------------------|--|--------------------|------------------|----------------------|--------|--------------------------|---------------------|-----------------------|---|
| 45                 | <u>sand</u> , dark yellowish brown (10YR 4/4), fine to medium-grained, subrounded, dense, slightly moist, dune sand. |                    | SP               |                      |        |                          |                     |                       |   |
| 50                 |  |                    |                  |                      |        |                          |                     |                       |   |
| 55                 |  |                    |                  |                      |        |                          |                     |                       |   |
| 60                 |  |                    |                  |                      |        |                          |                     |                       |   |
| 65                 |  |                    |                  |                      |        |                          |                     | 0.2/<br>0.1           | Begin drilling with a<br>10" auger at 11:30.<br>Drilling started at<br>65' on 7/31/03.<br>Redrilled borehole. |
| 70                 |  |                    |                  |                      |        |                          |                     | 0.2/<br>0.2           |   |



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| Depth<br>(ft. bgs) | MATERIAL DESCRIPTION   | Material<br>Symbol | Material<br>Type | Well<br>Construction | Sample | Blow<br>Counts<br>per 6" | Percent<br>Recovery | PID (ppm)<br>Amb/Strp | REMARKS |
|--------------------|--|--------------------|------------------|----------------------|--------|--------------------------|---------------------|-----------------------|---------|
| 70                 | <u>sand</u> , dark yellowish brown (10YR 4/4), fine to medium-<br>grained, subrounded, dense, slightly moist, dune sand. |                    | SP               |                      |        |                          |                     |                       |         |
| 75                 |  |                    |                  |                      |        |                          |                     |                       |         |
| 80                 |  |                    |                  |                      |        |                          |                     |                       |         |
| 85                 |  |                    |                  |                      |        |                          |                     |                       |         |
| 90                 | brown (10YR 4/3), wet, some silt.  |                    |                  |                      |        |                          |                     | 0.1/<br>0.1           |         |
| 95                 |  |                    |                  |                      |        |                          |                     |                       |         |



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|--------------------|--|--------------------|------------------|----------------------|--------|--------------------------|---------------------|----------------------|---|
| 95                 | <u>sand</u> , brown (10YR 4/3), fine to medium-grained,<br>subrounded, dense, wet, some silt, dune sand. |                    | SP               |                      |        |                          |                     |                      |   |
| 100                | dark grayish brown (10YR 4/2).   |                    |                  |                      |        |                          |                     | 0.1/<br>0.1          |   |
| 105                |  |                    |                  |                      |        |                          |                     |                      |   |
| 110                |  |                    |                  |                      |        |                          |                     |                      | Auger locking.<br>Switch to 10" auger.<br>Continued drilling<br>at 11:35. |
| 115                |  |                    |                  |                      |        |                          |                     |                      |   |
| 120                |  |                    |                  |                      |        |                          |                     |                      |   |



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|--------------------|--|--------------------|------------------|----------------------|--------|--------------------------|---------------------|----------------------|---------|
| 120                | <u>sand</u> , dark grayish brown (10YR 4/2), fine to medium-grained, subrounded, dense, wet, some silt, dune sand. |                    | SP               |                      |        |                          |                     |                      |         |
| 125                |  |                    |                  |                      |        |                          |                     |                      |         |
| 130                | Silty <u>sand</u> , very dark grayish brown (10YR 3/2), fine to medium grained, subrounded, dense, wet.            |                    | SM               |                      |        |                          |                     | 0.1/<br>0.1          |         |
| 135                |  |                    |                  |                      |        |                          |                     |                      |         |
| 140                |  |                    |                  |                      |        |                          |                     |                      |         |
| 145                | very dense.  |                    |                  |                      |        |                          |                     |                      |         |



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|--------------------|--|--------------------|------------------|----------------------|--------|--------------------------|---------------------|-----------------------|-------------------------------------|
| 145                | Silty <u>sand</u> , very dark grayish brown (10YR 3/2), fine to medium grained, subrounded, very dense, wet. |                    | SM               |                      |        |                          |                     |                       |                                     |
|                    | <u>shale</u> , dark grayish brown (10YR 4/2), hard, Monterey Formation.                                      |                    | SHALE            |                      |        |                          |                     |                       |                                     |
| 150                |  |                    |                  |                      |        |                          |                     |                       | End drilling at<br>2015 on 7/31/03. |
| 155                |  |                    |                  |                      |        |                          |                     |                       |                                     |
| 160                |  |                    |                  |                      |        |                          |                     |                       |                                     |
| 165                |  |                    |                  |                      |        |                          |                     |                       |                                     |
| 170                |  |                    |                  |                      |        |                          |                     |                       |                                     |